

## Poster Presentation

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### *50 years of protein crystallography and allosteric interactions*

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The International Year of Crystallography coincides with the celebration of the 50th anniversary of the landmark articles on allostery by Monod, Changeux & Jacob (1963) and Monod, Wyman and Changeux (1965). These articles defined “allosteric” interactions in proteins as “indirect interactions between topographically distinct sites” and devised the model (now known as the MWC model) for the conformational changes mediating them. The concept, which Jacques Monod reportedly described as the “second secret of life” second only to the genetic code, was invented to account for feedback inhibition and cooperativity properties in enzymes and regulatory proteins, including hemoglobin. The pioneering crystallographic analysis of hemoglobin, whose structure had been determined by Max Perutz at about the same time, provided evidence for the concept and likely contributed to inspire it. Half a century later, allosteric interactions and underlying conformational transitions have been captured in many crystallographic structures, uncovering a wide range of mechanisms whereby information that affects biological activities is propagated over a long distance between two binding sites. I will present examples of allostery in protein crystallographic structures that illustrate the expansion and widespread application of the original concept, notably in understanding diseases and aiding in drug design.

**Keywords:** Protein crystallography, Allostery